COMPUTER CRUSADERS

in the REALM of--

SPREADSHEETS

WHERE COMPUTER TOOLS HELP YOU "FIGURE" IT OUT!

CELLULAR AVENGER
PUBLIC ACCOUNTANT, QUICK-CHANGE ARTIST. POWERS: INSTANTLY ORGANIZES DATA INTO MATH GRIDS; CAN DISGUISE HERSELF IN THE APPEARANCE OF HER ENEMIES.

DATANAUTS
EVIL AND SNEAKY COMPUTER FRAUDSTERS WHO TRY TO SCRAMBLE SCHOOL RECORDS, BANK BUDGETS--AND NOW THE U.S. CENSUS!

CENSUS BUREAU REPORT

VIRUS

URGENT MESSAGE! FROM THE PRESIDENT OF THE UNITED STATES TO CELLULAR AVENGER AND FORMULATOR: EARLY CENSUS FIGURES WAY OFF! FOUL PLAY SUSPECTED! ACT NOW TO PREVENT DISASTER! CONGRESS AND I ARE COUNTING ON YOU!

FORMULATOR
MATHEMATICIAN, DETECTIVE. POWERS: PERFORMS COMPLICATED MATH CALCULATIONS IN A FLASH; TRACKS DOWN AND EXPOSES COMPUTER FRAUD.

CODE WORDS...

SPREADSHEET: An electronic grid that calculates data.

COLUMN: Vertical strips of data.

ROW: Horizontal list of data.

CELL: Any box in a grid that holds data.

FORMULA: Mathematical equation

VALUE: Number, formula.

LABEL: Information in words.

DATA: Information, facts.

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Illustration by Ron Zalme
Teaching and Computers
"Computer Crusaders" Super Page Series
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SCHOLASTIC

TEACHING GUIDE

By Janice Sork

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COMPUTER CRUSADERS SUPER PAGE SERIES

Each of the six Super Pages in this series features "Super Heroes" especially created to draw students' attention to an essential computer application. The Sept. Super Page explored word processing, Oct. emphasized graphics, Nov./Dec. focused on data bases, and Jan./Feb. explored desktop publishing. March/April will now focus on spreadsheets, and May/June will address "future tools."

Each Super Page is backed with a teacher's guide full of management tips and a set of activity cards through which kids master computer applications skills and complete a series of curriculum-integrated computer tasks.

MANAGEMENT TIPS

SUPER HEROES BULLETIN BOARD

The Computer Crusaders Super Page series can continue as the centerpiece of a year-long bulletin board display.

1. Remove the Jan./Feb. Super Page, headline letters, record keeping charts, and graphics passports. Leave the pocket charts up for new passports and activity cards.
2. Create a cutout letter headline reading "SUPER HEROES EXPLORE SPREADSHEETS TO COMBAT COMPUTERIZED CRIME!
3. Refill pockets with the new Super Hero Passport to the Realm of Spreadsheets (fill in student names first).
4. Purchase or create a grid tagboard for the record keeping chart.
5. Staple up March/April Super Page.
6. Mat open space with colored construction paper for displaying student work.
7. Photocopy, cut apart, and laminate several sets of the activity cards, below. Place these in a pocket on the board.
8. Select spreadsheet program for students to use such as *AppleWorks*, Microsoft *Works*, *Multiplan*, *Magicalc*, *Visicalc*, or *Practicalc*. Set up data disks for students. Store management disks together in pockets on the bulletin board or near the computer.

STUDENT SUPER HERO IDENTITIES

If they have not already done so, have your students make up a super hero name and identity for themselves (including strengths and weaknesses) to use in conjunction with this Super Page series throughout the year. For this Super Page, the student super hero identity will be used for the Super Hero Passport and several activities.

SUPER HERO PASSPORTS

Make a photocopy of the blank passport above for each student. Check your spreadsheet manual for specific details. For

SUPER HERO PASSPORT

to the Realm of Spreadsheets

Earth Name: _____

Super Hero Name: _____

- ◯ Input Editor
- ◯ Spreadsheet Organizer
- ◯ Problem Solver

Signed,
Cellular Avenger
and Formulatron

example, *AppleWorks* (Claris) columns are labeled with letters, and rows with numbers. Some programs label both rows and columns with letters. Introduce or review your chosen spreadsheet program, and give students time to learn and practice such functions as: column, row, cell, formula, label, data, value. Demonstrate booting, creating and naming a spreadsheet file, moving the cursor between cells, adding labels and values, editing a file, entering formulas, calculating and changing formulas to answer such questions as "What would it cost me if . . ." or "How many weeks would I have to save for . . ." Be sure and review computer symbols for multiplication (*) and division (/) .

There are three achievement levels for students to work toward. Level I denotes mastery of basic vocabulary and inputing and editing data into a previously setup spreadsheet. Level II is for students who are able to type a preplanned spreadsheet from scratch, adding and editing data. Level III is for students who can plan and implement a spreadsheet with formulas to problem solve. As students demonstrate mastery of these skills, mark or add a sticker to the achievement boxes listed on each passport.

GRID CHART RECORD-KEEPING

The grid chart will help you keep track of student progress on the activity cards. List the activity cards along one axis of the grid, and add your students' names on the perpendicular axis. Paste-on stars, stickers, or a simple felt pen mark can be added as students complete the computer activities.

COOPERATIVE LEARNING ACTIVITIES

Several of the activities below are designed for cooperative learning groups of two to five students. When forming these groups, make sure that each group has a representative mix of abilities, strengths, and weaknesses, and that each group member has a specific role to play (typist, editor, reporter). Explain to students that their individual "success" in these activities depends on the total group effort. Talk to them about cooperating, solving differences, and who makes the final decision if one is needed. Point out that only when a group activity is satisfactorily completed will each member get credit on the grid chart.

ACTIVITY CARD GUIDE

ACTIVITY 1: SPEEDY SPREADSHEETS

Use this activity to introduce or review spreadsheet basics. Pass out one inch grid paper to students. Draw a grid on an overhead transparency and let them follow along as you explain what a computerized spreadsheet is. Explain that it is made of numbered ROWS (horizontal) and lettered COLUMNS (vertical). Have students label the columns A, B, C, and D, and the rows 1, 2, 3, and 4. The places where the columns and rows meet are called CELLS. A1, D4, F6 are examples of cells. Each cell holds one piece of information—a word (LABEL), a number (VALUE), or a mathematical sentence (FORMULA). Explain that a completed formula gives a value. Let your students label rows, columns, and cells on their grid paper.

Lead a discussion asking students to point to row 1, row 4, column B, column D, and cells B1 and D4. Once students are comfortable with the basics, divide them into groups of two or three to work on Activity 1.

ACTIVITY 2: EASY EDITING

Put the following information in a spreadsheet file called EASY EDITING:

Cell B1 Super
Cell B6 Formulatron
Cell B7 Avenger
Cell B8 Fontasia
Cell C2 Powers
Cell D1 Datanauts
Cell D2 Caught

Demonstrate to students how to enter data, delete data from a cell or row, increase column width, create a new column, labels, formulas, and print.

ACTIVITY 3: REMARKABLE RECIPES

Create a spreadsheet file called SPACE CRUNCHIES. Make a file template using the following list with your own ingredients and amounts: Recipe Name, Ingredients, Mixing Instructions, Oven Temperature, Yield. Discuss with students how formulas are written and entered. Use a sample recipe to illustrate how recipes can be doubled and tripled to serve large numbers of people.

ACTIVITY 4: BEST BUY

A spreadsheet is a useful tool for comparing prices or the ingredients in products. Have available different sizes of jars and boxes of peanut butter and crackers. Have students determine the cost per ounce of each of these products. Next have them sort the columns for the best buy.

Another way that students can determine the best buy is by listing and sorting ingredients Students should list ingredients in their spreadsheet in the same order they are listed in the product. You may want to suggest that they only list the first five ingredients. Using this method, they can determine which products have the most salt or sugar.

Once they've sorted this spreadsheet, have them compare it with the price spreadsheet. Taking both nutritional value and cost into consideration, which is the truly best buy?

ACTIVITY 5: ACCURATE AVERAGES

Demonstrate spreadsheet averages with a class broad jump. Each student should make three jumps, each time letting a friend record the distance of his or her jump. Next use the data to set up a spreadsheet called JUMP. Let students determine what cells, values (inches or centimeters), and formulas to use.

Once all data is entered, print out a copy for each student. Next, have them develop questions in their groups to be answered by the spreadsheet activity. Repeat this activity allowing students to jump again, edit their previous scores, and discuss how the averages changed.

ACTIVITY 6: YOU COUNT

When you were born you were counted as part of America's population and every ten years (on the"0" year) the U.S. Constitution requires an update to determine the number of representatives each state sends to Congress.

On the chalkboard, make a list of items that students want counted. For instance, how many kids have fish for pets? Explain to students that what they will be doing is taking a census or a count of people, animals, or things, and entering their data into a spreadsheet which will calculate the total.

ACTIVITY 7: PROBLEM SOLVING

Review labels, values, and formulas on the activity card. Read the word problem as a class and decide which data is necessary for the spreadsheet. What labels are needed? What formulas could be used? Encourage students to work in groups and brainstorm answers to these questions and devise their own spreadsheet. Make transparencies of students' spreadsheet plans. Each group should have a reporter that explains the spreadsheet solution to the class for discussion.

ACTIVITY 8: CRUSADERS CONVENTION

Help students plan a Super Hero Convention. Have on hand travel brochures, time tables, and hotel information from different states or other countries that fit your curriculum. Next, students should decide on the place for the convention and what travel information is necessary to include in the spreadsheet. Students will set up a spreadsheet that compares the cost of three different hotels and computes the total cost of hotel, and airfare for each. Students may need to abbreviate names in the spreadsheet. When they find the best location, hotel and airfare, have them design an invitation that lists the information.

COPY & LAMINATE

ACTIVITY CARDS

ACTIVITY 1
SPEEDY SPREADSHEETS

Use your grid chart to fill in the following information.

1. In Cell A1 write the label NAMES.

2. Write your first name in cell A2 and list the names of two or three people in your group in cells A3, A4, and A5.

3. In cell C1 write the label FAMILY.

4. In cell C2 write the number of people in your family. Complete cells C3, C4, C5 with the number of people in your groups' families.

5. In cell E1 write the label PETS.

6. In cell E2 write the number of pets in your family. Complete cells E3, E4, E5 listing the number of pets in your group.

7. In cell B6 and cell D6 write the label TOTAL.

8. In cell C6 write the formula +C2+C3+C4+C5. In cell E6 write +E2+E3+E4+E5. (Note: Some programs may enter formulas differently. Check with your teacher.) These cells will show you totals of family members and pets.

9. Now type in a different number for one of the pets or family members. What happens to cell C6 or E6?

ACTIVITY 3
REMARKABLE RECIPES

It's Cellular Avenger's birthday! She's inviting 200 of her closest friends to a party. Two days before the party she realizes that she forgot to make space crunchies, her favorite dessert. She needs your help! Call up the spreadsheet file called SPACE CRUNCHIES. Type in your own list of ingredients starting in cell B4. Add the amount of space crunchies you want to make beginning in cell C4 and the measurements you will have to use to make a particular amount starting in cell D4. In column E type the formula you would use to double or triple the recipe.

ACTIVITY 5
ACCURATE AVERAGES

As a class, create a spreadsheet to determine broad jump averages. Use this spreadsheet to answer the following questions:

1. What is located in cell B4? A1?

2. Give examples of a VALUE, LABEL, and FORMULA that was used in the spreadsheet.

3. What were your three scores? What was your individual average?

4. What was the class average for each jump?

5. Who had the highest individual average?

6. Which group averages were the highest: the first and third jumps or the second and third jumps?

7. What have you learned about averages?

ACTIVITY 7
PROBLEM SOLVING

Justin, Tracy, and Amy want to buy a computer that costs $400 for their clubhouse. They all earn an allowance of $3 per week for chores they do at home. Each kid has the following savings: Justin ($42.95), Tracy ($29), and Amy ($14.21.) They plan to pool their savings and save all of their future allowances toward the computer. How many weeks will it take to save $400? If they earn an allowance increase to $3.75 how many weeks will it take to save $400.

In a group, complete a spreadsheet using this information. Print out a copy of it and report your solution to the class.

Extra credit: Plan a spreadsheet program with real data showing something you would like to save towards such as a new bicycle, guitar, used car, and so on. Include interest earned by placing the money in a savings account. (Note: Be aware of penalties for early withdrawal).

ACTIVITY 2
EASY EDITING

Retrieve a file called EASY EDITING and make the necessary additions and changes as outlined below.

1. In cell B2 type the label Heroes.

2. In cell C1 type the label Super.

3. In cell D2 edit and change the label Destroyed.

4. Increase the width of column E to 20 characters.

5. Give cell E1 a label and type additional data in cells E2, E3, E4, and so on.

6. In cells B3, B4, B5 type the name of other Super Heroes.

7. Determine the powers for all Super Heroes in Column C. Type one power in each cell.

8. Delete Row 8.

9. Add the following values. Cell D3 (45) cell D4 (89) cell D5 (679). Make up values to add to the rest of the cells in column D.

10. At the end of column D write a formula that determines the total number of Datanauts destroyed by Super Heroes

ACTIVITY 4
BEST BUY

Use a spreadsheet program to compare the costs of different brands of peanut butter and crackers. You will need to set up columns and make labels for the brand name, size in ounces, price, and the price per ounce. Also compare the same brand, packaged in different sizes to determine the best buy. After you have found the best buy, compare ingredients of the same product but different brands. Do this by comparing the order of a particular ingredient like, salt or sugar, in each brand. Add this information to your spreadsheet. Which product is the healthiest? Looking at the cost and ingredient spreadsheet, which product is the best buy?

ACTIVITY 6
YOU COUNT

It's 1990 and you've landed a job as a census taker. Your job is to speak to five people and find out how big their families are, how many and what kind of pets they own, and how many use seatbelts. Next, you will enter the information into a spreadsheet, write a formula that will total each category, and finally, report your findings to the class. What interesting facts did you find out? What's the average family size? What's the most popular pet? Make a list of other things you'd like to know. Create a spreadsheet with this new list and then poll your friends.

ACTIVITY 8
CRUSADERS CONVENTION

You must decide on a place to hold the annual Crusaders Convention. Take a look at some travel brochures, timetables, and hotel guides. Choose three possible convention places. Enter the information (flight schedule and ticket price, room and board costs) into your spreadsheet. After all the information is entered, write a formula that will total travel expenses for each place.

Extra Credit: Add additional columns showing the cost of food, tips, entertainment, and gifts.